Reporting Federal Activities . . .

Higher Education

Features for DECEMBER 1959

Manpower—Two aspects:

Manpower and Higher Education in the 1960's . . . By NEWELL BROWN
Assistant Secretary of Labor

The Future of ROTC . . . . . By CHARLES C. FINUCANE
Assistant Secretary of Defense

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

HIGHER EDUCATION

Reporting Federal educational activities at college and university levels

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The Manpower Outlook for the 1960's

Its Implications for Higher Education

By NEWELL BROWN*

HIGHER EDUCATION will have a pivotal role in meeting our country's essential manpower needs during the next 10 years. This conclusion emerges unmistakably from Department of Labor studies of employment and labor force trends and particularly from some recently completed projections of manpower prospects for the 1960's. A look at some of the findings from these new studies also points up sharply the magnitude of the challenge ahead to colleges and universities.

The American manpower structure faces an extensive changeover during the 1960's. *First*, a substantially larger number of people will be seeking work in the American labor market. *Second*, there will be a continuation, probably even an acceleration, of the trend toward white collar occupations—the jobs we associate with higher education and training. *Third*, there will be a rise in the level of training and educational requirements of jobs all across the board.

Expected Labor Force Growth

The rapid increase certain to take place in the labor force as a whole is the most basic fact about the manpower future. Between 1960 and 1970, the total number of workers in the country will rise from over 73 million to about 87 million, according to the Department's projections. This will represent a net increase of nearly 14 million, or about one-fifth, in the Nation's work force. Most of the increase in the country's work force will be in the youngest and oldest age groups: 47 percent of the additional workers, about 1 out of every 2, will be under 25 years of age; and 41 percent, 2 out of 5, will be 45 years and over. The 25–34 age group will increase by 13 percent. And, most significantly, there will be a decline of 1 percent in the number of workers in the age group 35–44, where many of our professional, managerial, and highly skilled people are to be found.

The very low birth rates of the thirties and the enormous upturn in births throughout the forties have given an unusual configuration to our population and its distribution through the labor force. It is an hourglass figure, with the wide areas of increase at the bottom and the top and a constriction in the center.

Achieving this overall growth of nearly 14 million in the labor force will require the entry into employ-

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In addition to his Federal service, Mr. Brown has had broad experience bearing upon his topic both in State government and in private enterprise, having been a newspaper editor and publisher, Secretary to Governor Sherman Adams of New Hampshire, and Director of the Division of Employment Security (New Hampshire). He is a graduate of Princeton University.

ment of a still greater number of new workers—almost 30 million altogether—since close to 16 million people are expected to leave the work force during the 1960's through retirement, death, or other causes. Of these 30 million labor force entrants, more than 26 million will be young people beginning their careers. Where will we find job opportunities for this tremendous number of young inexperienced workers while we search for trained and experienced people who will be needed to fill higher level jobs?

Growth of Service Industries

To the question of where the great numbers of new workers will be employed, the first answer suggested by the Department's employment projections is that the majority will go into service industries. Our country has already reached the point at which more people are engaged in producing services than in producing raw materials or manufactured goods, and the trend in this direction may accelerate. Employment in the fast-growing service industries—finance, insurance, trade, professional and other services including medicine and legal services, and government including public schools and State-supported colleges—will probably continue to rise faster than the labor force as a whole.

Industries producing goods will also continue to take on more workers, but here the increase in employment will be slower. Automation, mechanization, new production techniques—all these have so boosted productivity that fewer and fewer workers will be needed to produce more and more goods. Employment in transportation and public utilities should rise more slowly than the average rate for the civilian labor force.

Increasing agricultural productivity will also continue to take its toll of employment opportunities on the farm. Farm employment has decreased by more than 5 million workers since 1940. Our projections suggest a drop of another million in farm employment over the next 10 years, to about 5 million by 1970, even with a continued rise in the production of food and other farm products. Increasing mechanization has been a major reason for rising farm productivity, but better fertilizers, insecticides, and many other advances in agricultural methods, to which agricultural colleges have made a great contribution, have also been important reasons.

Rise in Professional and Other White-Collar Employment

A milestone in the employment history of this country was passed a few years back when the number of people in white-collar jobs—professional workers and technicians, managers, office and clerical workers, salesmen, and the like—for the first time outnumbered the people in blue-collar jobs. This trend is expected to continue. By 1970 about 45 percent of all jobs in the country may be in the white-collar category and only 36 percent in the blue-collar category, with the remainder in farming and the various types of service activities.

More significant from the viewpoint of higher education is the fact that professional workers will be by far the fastest growing of all the major occupational groups. As shown in the chart, the number of professional, technical, and kindred workers is expected to rise from 6½ million in 1957 to nearly 10½ million by 1970. This would be a rise of about 60 percent, half again as large a percentage increase as is expected in sales occupations and double or triple the increases projected for other groups in which any rise in employment is in sight.

Some rise in employment is expected in all major professions, although the rate of growth will be much faster in some fields than others. Engineering and the sciences will be among the fastest growing professions over the next decade, as they have been in the past. Twenty years ago, only 1 scientific or technical worker was employed for every 100 people in the labor force; today there is 1 for every 32 workers. Our projections show that this trend will continue. By 1970, the number of engineers at work in the country may be nearly twice as great as the estimated 800,000 employed in 1957. In the sciences, the overall rate of employment growth will probably be much the same. Some scientific fields, such as mathematics and physics, are expected to grow especially fast. The largest fields, chemistry and the biological sciences, are also likely to grow rapidly; but some others, for example, geology, may grow relatively slowly.

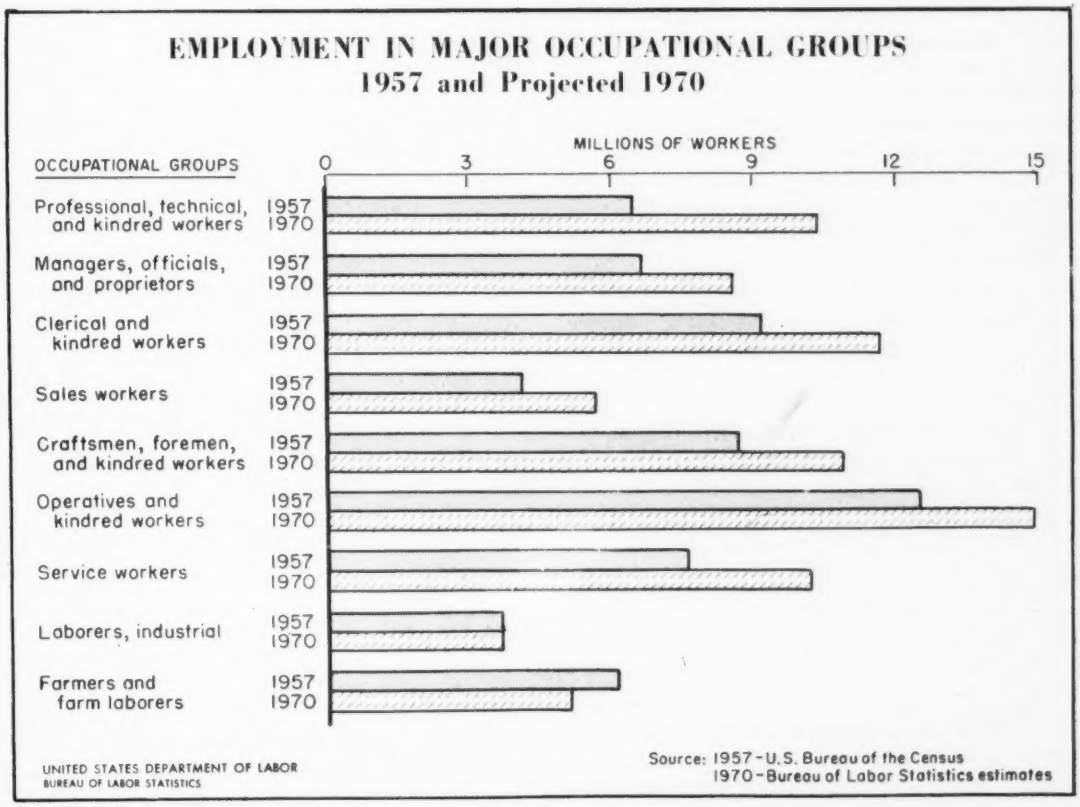
Technicians who work with and give technical support to engineers and scientists will also be very much in demand. Employment in these technician occupations has shot upward during the past two decades. By 1957, the number of technicians employed had just about caught up to that of engineers.

In 1970, there will probably be more technicians than engineers in industry and government agencies.

Although the recent increases in employment of technicians have been due partly to shortages of professional manpower in engineering and scientific fields, the growth of technician occupations has a more fundamental cause. It stems basically from the advances in industrial and military technology, which have created a need for workers with a combination of manual skill and scientific knowledge. During the next decade, opportunities for technicians will be increased by the same factors—the growing complexity of our technology and the ever-increasing emphasis on better utilization of scientific and engineering manpower.

Another field in which needs will rise very fast during the 1960's is college teaching. The sharp increase in birth rates since World War II is, of course, the main reason for this prospective increase as well as for the expected great rise in employment of young workers discussed earlier. The year when the birth rate shot upward most rapidly was 1947; in 1965, 18 years later, the colleges will face the consequences in an unprecedented flood of boys and girls seeking to enter the freshman class. In following years, first-year enrollments will rise still higher, and total college enrollments will also increase greatly. According to estimates made by the Office of Education, college enrollments will probably total about 6.5 million in 1969–70, compared with the 1959–60 total of 3.8 million, itself an unprecedented figure.

As every college administrator knows, it is no simple matter to derive from enrollment projections even rough estimates of college faculty needs. Personnel requirements are influenced by many other factors besides enrollments; among them, the large and varying numbers of part-time faculty members and technological and other innovations affecting



class size. The available evidence suggests, however, that the demand for college teachers will grow about as rapidly as the demand for engineers over the next decade. Provided adequate numbers of qualified young men and women prepare for and enter the field—and this is no small proviso in view of the current shortages of faculty in many subject areas—college teaching will be among the most rapidly expanding occupations in the country.

Growing Demand for College Graduates

The expected increase in professional employment tells only part of the story, though an important part, of future demand for college graduates. The 60-percent rise in employment projected for professional, technical, and related occupations between 1957 and 1970 would mean jobs for approximately 4 million additional workers. However, this is a net figure which takes no account of the need to replace persons lost to the professions through retirements, deaths, and transfers to administrative and other occupations. We anticipate that the number of new workers needed to fill jobs left vacant from such causes may be as great as the number required to staff new positions—raising the personnel needs expected in the professions and related occupations over the next decade to a tremendous total.

Not all the new entrants into professional and kindred jobs will be college graduates. This broad occupational group includes not only the recognized professions but also the technical and kindred occupations that, typically, persons with less education can enter. Furthermore, in certain professions, such as those of writer, actor, and musician, a college education may be less important as a qualification for employment than special talent and skill. And some exceptional persons who are not college graduates will continue to achieve professional status in engineering, accounting, and other fields, although the opportunities are becoming more and more limited for persons without bachelor's or advanced degrees.

On the other hand, the demand for college-educated people is not limited to the professions but is rising also in many types of administrative, sales, and even clerical positions. As shown in the chart, the total number of managers, officials, and proprietors in the country will increase moderately in the next decade (by about 28 percent between 1957 and 1970), and the numbers of college graduates in administrative work probably will increase much faster than this. Industry now gives preference to college graduates for many executive trainee, sales, and other positions which a few decades ago either did not exist or would have been filled by employees qualified through experience and personal characteristics rather than a college degree. The emphasis on a college education is strong in modern business and government and will probably become stronger in the future, in view of the steadily increasing body of knowledge and skill required for many fields of work.

Whether our national needs for college educated people are met in the years ahead will depend, in large measure, on the success achieved in planning and carrying through expansions in college and university facilities and in securing enough qualified teachers. With leadership from the U.S. Office of Education, many institutions of higher education are making headway in meeting these problems. Their solution will require the cooperation and support of many groups, government and private, in and outside the field of education.

The Department of Labor's studies of employment trends and personnel requirements in the professions and many other fields can be of assistance in planning expansions in educational facilities. The occupational outlook program of the Bureau of Labor Statistics provides an evaluation of future needs in a great number of different occupations, on a national basis.[1] Area skill surveys conducted by State employment security agencies affiliated with the Bureau of Employment Security furnish assessments of occupational needs in different communities.[2] The Department hopes to continue and to expand these programs, and to cooperate closely with educators in doing so. To insure that college facilities and staff are expanded as required to meet personnel needs in different fields is a goal of highest priority from the viewpoint both of our national strength and of the life opportunities of millions of young men and women.

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[1] Up-to-date information on employment trends and prospects in over 600 occupations is contained in the 1959 edition of the *Occupational Outlook Handbook*, U.S. Department of Labor, Bureau of Labor Statistics, Bull. No. 1255. Available from the Superintendent of Documents, Washington 25, D.C., price $4.25.

[2] For a description of this program, see "Higher Education and Community Occupational Programs," *Higher Education*, October 1959, p. 19–20.

The Future of the ROTC

By CHARLES C. FINUCANE*

Within the past few years concern over the future of the Reserve Officers Training Corps has been reflected on college campuses, in newspapers and magazines, in books, in the deliberations of Congress, and in the Defense Department. Spokesmen for the college associations, faced with pressing problems of space and facilities, have asked the simple searching question, "Will the Armed Forces have a need for the ROTC in the years ahead?"

Articles in professional magazines and periodicals have offered constructive suggestions for improving the ROTC program. A comprehensive survey of ROTC entitled "Education and Military Leadership," by Gene M. Lyons and John W. Masland, members of the Department of Government of Dartmouth College, was published earlier this year in book form.[1]

In the past two years, the Military Departments have conducted exhaustive surveys and made reappraisals of practically every phase of the ROTC program, with emphasis on examination of the curriculums. The Air Force has invited educational leaders at the institutions having Air Force ROTC units to a conference in December 1959 to discuss the recommendations of these studies. Between October 1958 and March 1959 a Department of Defense Ad Hoc Study Group conducted a reevaluation of certain fundamental concepts of the program.

In the light of the considerations mentioned above, it is felt that a statement of the Department of Defense views on the various aspects of the ROTC program may be of value.

In order to answer the question posed by educational leaders, "Will the Armed Forces need the ROTC in the future?" the Department of Defense Ad Hoc Study Group first reexamined the objectives of the ROTC and the requirements of its program. As a result of this reevaluation, the mission of ROTC was determined to be: "To produce qualified officers as required for the Active and Reserve forces and the Regular and Reserve components."

The total annual requirements of the three services for ROTC graduates are expected to remain at approximately the following level for 10 years:

Army	14,000
Navy	3,000
Air Force	4,000
Total	21,000

As indicated in the statement of its mission, the ROTC produces officers to meet the requirements of both the Active establishment and the Reserve forces not on active duty. The Navy and the Air Force plan to send all graduates to two or more years' active duty after graduation from service academies or colleges and universities. Those who do not remain in service as career officers after the active duty phase are needed in the Reserve forces. The Army expects considerable numbers of men to enter

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[1] Princeton University Press, 1959. Cloth, 283 p. $5.

the Reserve forces directly upon being commissioned. These officers are first sent to 6 months' active duty for training to prepare them for the Reserve assignment. The Army Reserve also needs the services of the other non-career graduates after they have finished the required 2 years of active duty.

The Army plans to commission 800 ROTC graduates each year in the Regular establishment. The remaining 13,200 will be needed in the Reserves after they have fulfilled their active duty obligation. The Navy commissions one-half its annual ROTC graduates, or 1,500, in the Regular establishment.

The Air Force plans call for Regular appointments to approximately 500 of its annual 4,000 graduates. The others are commissioned in the Reserve and after 1 year of active duty are given the opportunity to apply for a Regular commission. The Air Force hopes to obtain many more Regular officers from this source.

In summary, the ROTC is needed to produce 21,000 qualified officers annually for the Armed Forces. Most of them are required immediately on graduation for active duty, with some (Army only) going directly into the Reserve forces. It is the major source of Regular officers for all Services.

In addition to the quantitative requirement for ROTC graduates in the Regular and the Reserve components, there is another important consideration, the need for increasing emphasis on the quality of the leadership for our future Armed Forces. As our weapons and weapons systems become more complex, the quality of the personnel to man and direct them must increase. As battlefield mobility and the requirement for greater dispersion increase, there will be greater demand for leaders with initiative and the ability for decisive action. The college campuses have the greatest potential to meet these quality requirements.

Another answer to the educators' question is closely related to the traditional American concept of national defense. This is the concept of the citizen bearing arms in the event of emergency—the citizen-soldier concept. Under this concept our country has remained strong. It has provided a significant deterrent to any would be aggressor; in wartime it has provided the margin needed for victory. The ROTC will be needed in the future, as it is now, to provide leadership for our Reserves. In this function it fulfills a most important requirement—one we must never forget—for if the day comes when the citizen leaves to the Armed Forces on active duty the entire defense of our Nation, then this great Republic will truly be inviting destruction.

The Curriculum

An area of concern has been the ROTC curriculum. Some critics have said that the curriculum contains too many subjects which are not sufficiently challenging to the intellect of the college student. Examples are "crew served weapons" and "stripping and assembling of the M–1 Rifle." There are numerous other allegations serving only to point up the fact that people have differing ideas about what one should know in order to be an effective leader of men in battle.

For many years the Military Services have sought the secret of teaching or developing leadership qualities in an individual. Curriculum changes in each of the ROTC programs have pointed toward an inevitable conclusion: the courses taught by the college faculty are necessary components in the development of the officer-leader needed by the Services in this space age. These changes reflect also the recognition that command and leadership and personnel management are necessarily intertwined and that the college professor and the college atmosphere have a big part to play in their development.

What part should the college take in improving ROTC?

First, it is highly desirable that the college work more closely with military planners in designing ROTC curriculums of the various programs. The Services must, of course, make this possible. Once the specific objectives of a particular ROTC program are clearly identified, who is better qualified to provide expert counsel on the specific courses required to accomplish those objectives than a faculty committee composed of both professional educators and professional military men?

Second, the colleges can provide instruction in the areas which are of interest to the academic departments of the college but which through the evolution of the ROTC curriculums have been taught by military officers. Currently, each of the Services includes in its ROTC curriculum a certain amount of instruction in academic areas that are logically and traditionally the primary interest of other academic departments. The colleges have for many years offered courses tailored to the needs of

specific professions. There are courses in writing to meet the specific needs of engineering and technical students. There are basic science courses for premedical students, pre-engineering students, and non-technical students. The Services are becoming increasingly aware that military officers are out of their element in teaching such purely academic subject matter as the basic psychology upon which military leadership is founded, to mention only one example. Courses taught by college professors in such areas of military significance as world history, international relations, public speaking and group discussion, world geography, political ideologies, and general psychology would be of great value to the professional development of the ROTC cadet.

It is the view of the Department of Defense that the ROTC curriculum should be developed by the Services working in close cooperation with the educational authorities. All Services keep the curriculum under constant review, and it is appropriate to discuss what each Service is doing in this area.

Army Curriculum

The Army is conducting curriculum studies with the primary objective of determining courses of action which will insure that the ROTC program provides high caliber officers in sufficient numbers to meet its future requirements. If the Army is to survive as a progressive dynamic force ready to meet the challenges of the future, it must receive its proportionate share of the best college graduates. In support of this view, it is now considering a revision of the ROTC curriculum to give greater emphasis to purely academic courses. Under this guideline, the U. S. Continental Army Command is currently developing a revision of the curriculums for both the branch material course and the general military science course. Additionally, the Army is considering a reduction of on-campus instruction time in purely military subjects, and granting ROTC credit for academic subjects such as mathematics, physics, and psychology. These subjects and others yet to be selected will contribute significantly to the background and knowledge necessary for an Army officer and provide for minimum interference with normal academic pursuits of the students. When the Continental Army Command has completed its studies its recommendations will be presented to the Department of the Army and the Army Advisory Panel on ROTC Affairs prior to implementation. A meeting of the Advisory Panel is scheduled for early December 1959 to discuss these recommendations.

Navy Curriculum

The NROTC curriculum is under constant review and is often revised to keep it abreast of new developments that might contribute to or influence the education of a midshipman. This continuing review, by consultation between the faculties of the various universities, the professors of naval science, and the Chief of Naval Personnel, results in an evolutionary process of revision. Changes are also influenced by the Technical Bureaus within the Navy, by the Chief of Naval Operations, and by the operating forces. Such coordination is required to keep the instructional program challenging and up to date.

Major changes that have been made recently or are being contemplated for the next year or two are described below.

(1) A course in psychology is being initiated in the school year 1959–60. This course will be required in the sophomore year and will serve as a prerequisite to a required course in "Principles and Problems of Leadership," which is given in the senior year. It will include a study of the psychological nature of the individual and of groups, the influences affecting human action and interpersonal relations, practical application of principles of human relations, personnel management or supervision, problems of motivation and adjustment, an introduction to methods of evaluating aptitudes and achievements, and related topics. Though the course will cover introductory psychology, it will stress the practical application of proved principles in the naval environment—particularly to typical problem areas encountered at the leadership level of the junior officers. This course will be taught by university civilian faculty members.

(2) The naval weapons course has been reduced from a 6-semester-hour to a 3-semester-hour course to allow for the introduction of the psychology mentioned above. The weapons course also has become a course of scientific principles rather than a strictly "nuts and bolts" course. The objective of the course is to develop an understanding of the fundamentals of naval weapons and weapons systems, stressing basic principles and their application

to control of the seas. The major areas in the course include basic weapon delivery problems, basic gunnery, typical fire control problems, antisubmarine warfare, missiles, nuclear weapons, and space technology. The course is designed to develop in the student some understanding of the purpose and capabilities of naval weapons. Supplementary instruction and practical work are included in laboratory sessions.

(3) The "Principles and Problems of Leadership" course, given in the senior year, also has been modified for this school year. The original course emphasized the Uniform Code of Military Justice and the organization of the Department of Defense. The present course is a study of the principles and techniques that will assist the newly commissioned officer in performing his leadership functions in the Navy and it includes moral and professional leadership responsibilities of Division officers and Department heads. This course is taught by naval officers on active duty.

(4) A 3-semester-hour experimental course is being conducted at the University of New Mexico in the teaching of navigation. In it the application of mathematics to the knowledge and skills required in navigation is emphasized. However, the traditional "day's work" will still be a requirement in the navigation course.

(5) Six contact hours have been added to the curriculum in the introduction of the course "Outer Space Education." It covers information of the indoctrinational type and also serves as a means of making midshipmen aware of the importance of this field.

The NROTC curriculum is kept current by standing committees for particular subject fields. These standing committees not only look at curriculum content but also review the requirements for training aids, training equipment, and methodology. The Chief of Naval Personnel has found the committee approach an excellent means of keeping the curriculum current.

Air Force Curriculum

An extensive 3-year exploratory study at Ohio State University and less extensive experimental programs at other institutions have established the validity of the use of civilian faculty members to teach certain parts of the Air Force ROTC curriculum. A byproduct of the study was a fuller recognition by the Air Force that certain parts of the ROTC curriculum are in reality social science and humanities. This view was an important factor in a decision that has led to the teaching of certain ROTC courses by civilian instructors in 35 of the 176 institutions having AFROTC units.

At the December conference of all the presidents of colleges having AFROTC units, the Air Force will propose, as one possible course of action, that the AFROTC curriculum be reduced by the equivalent of 12–15 semester hours in favor of standard college courses. The remaining courses taught by Air Force officers would be in those professional military areas in which the Air Force officers are truly professionals. It is hoped that a consultive group of civilian educators will be formed at this meeting, with whom the Air Force may explore more fully these possible actions and other topics toward mutually satisfactory solutions.

The Problem of Academic Credit

Closely related to the problem of revising the curriculum is the problem of adequate academic credit for ROTC. In fact, it may be said that the revision of the curriculum has received increased attention as a result of the trend in some areas to reduce the credit given to ROTC. The problem is not widespread, for, by and large, responsible authorities realize the importance of ROTC and the value of the military training in preparing for all walks of life. One exception should be noted, however, and that is the engineering profession. At many universities it has become progressively more difficult for engineering students to carry ROTC, either because of insufficient credit or because of academic overload. An extract from a Navy report on this subject is pertinent:

> The problem of academic overload has been one that the Navy has been greatly concerned about for a long time. In 1957 the Chief of Naval Personnel took a sample survey as to how the academic overload is affecting the NROTC program, especially engineering students. The following are some of the comments made by the professors of naval science:
>
> > During the past year the professor of naval science has been concerned with the number of students who are not able to assume leadership positions in extracurricular activities because of the academic load required. Regulars as well as contract students are chosen because of their leadership potential and are naturally in demand by their fellow students for leadership positions. This situation creates an undesirable paradox; it is the policy of this unit to recom-

mend curtailing activities rather than permitting a decrease in academic load, thus depriving the student of valuable leadership experience.

It is estimated that about 50 students who might have otherwise been interested never commenced the processing system because of the overload . . .

. . . of the 21 contract students still enrolled in engineering, it is expected that at the end of this semester 3 will have to change their major and 9 be disenrolled because of academic overload.

The statistical data obtained as a result of the survey showed the following:

Contract Students

(1) The percentage of freshman contract students who did not major in engineering, who were dropped from the NROTC because of academic overload, or who did not enter the contract program when they were told about the academic overload is 22 percent. About one engineering student in every five is lost to the Navy because of the academic overload.

(2) Twenty-four percent of the contract students who have already successfully completed the freshman year have been lost as engineering students or to the NROTC program during their sophomore year as a result of academic overload. This represents a loss of 1 in every 4 contract engineering students.

Regular Students

(1) The loss during the freshman year of Regular engineering students is not significant.

(2) The loss during the second year of Regular engineering students in whom the Navy has 1 year's investment is about 1 in 10.

Putting it another way, the survey of 19 units indicated that 160 freshmen and 130 sophomores, regular and contract NROTC students, who had indicated an interest in engineering or who had registered in engineering, were lost to the Navy ROTC program because of academic overload. It can be concluded that there is evidence that the academic overload for engineering students in the NROTC program is of vital concern to the Navy.

All Military Departments have taken up this problem in various ways with the Engineer's Council for Professional Development (ECPD). Furthermore, the Department of Defense will do all it can to support the Military Departments in reaching a satisfactory solution to this problem. It should be evident that the Armed Forces of the future are going to need more officers with engineering background rather than fewer. It is felt that a satisfactory solution to the curriculum problems discussed above will in all likelihood provide the solution for the problems related to academic credit.

Compulsory Basic ROTC

There has been some concern over the policy on compulsory basic ROTC (first 2 years for Army and Air Force programs only). Of the 313 institutions having ROTC, 177 have compulsory programs. A clear definition of the Department of Defense policy on this subject has been requested. The criticism has been made that the Department's policy is not definitive.

The Department of Defense realizes that the Morrill Act of July 2, 1862, does not require compulsory basic ROTC per se. It does require the land-grant colleges to offer courses in military tactics. Of the 64 land-grant colleges which have ROTC, 61 have chosen to make basic ROTC training compulsory. The Department of Defense recognizes the benefits of a compulsory policy. The military discipline is valuable training for all males and will prove of incalculable value to them in any future emergency, whether or not they continue their instruction and become officers.

The Department of Defense also realizes that compulsory basic ROTC is compatible with the educational philosophy of many institutions. Compulsory basic ROTC does afford a high degree of selectivity for the advanced course. On the other hand, analysis of various surveys reveals that the quality of the product cannot be related to whether a school has compulsory or elective basic ROTC. Evidence on this subject is inconclusive. One is forced to conclude that the quality is related primarily to (1) the

NSF Postdoctoral Fellowships

THE CLOSING DATE for applications for National Science Foundation postdoctoral fellowships to be awarded in March 1960 is December 22, 1959. Fellowships will be awarded in the mathematical, physical, medical, biological, engineering, and other science fields, including anthropology, psychology (other than clinical), geography, certain interdisciplinary fields, and selected social science fields.

Eligibility requirements include U.S. citizenship, special aptitude for advanced training, and a doctoral degree or equivalent in training or experience. The stipend is $4,500 per year, and limited allowances are made for dependents and travel costs.

Application forms are available from the Fellowship Office, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, NW., Washington 25, D.C.

academic standards of the institutions, (2) the intellectual attributes of the individuals, and (3) the motivation of the individuals. In view of the above, the Department of Defense has confirmed its policy of "freedom of choice" on the question. In other words, the determination of policy will continue to be left up to the authorities at the educational institution concerned. The Department of Defense will provide adequate personnel and equipment to support the decision of the institutional authorities.

Additional Federal Support

Since 1945, there have been various legislative proposals related to providing additional Federal support to institutions having ROTC units, primarily funds for building facilities. Within the past few years demands for additional Federal support have been increasing, for college officials are faced with the real problem of preparing for the expected 100 percent increase in enrollments during the next decade.

Since all evidence indicates that the greatest need is for adequate facilities, the first course of action in the past 15 years has been to propose legislation providing Federal funds on a matching basis for construction of ROTC facilities. Close analysis of such a proposal by the Department of Defense reveals that although it might alleviate the facilities problem, it does have serious drawbacks. It is not considered equitable since the provision of Federal funds is dependent upon the institution's ability to provide matching funds. This would favor the State and heavily endowed institutions and penalize the small privately endowed institutions. Another serious disadvantage is that it would limit flexibility in the management of the program. Even though there may be no marginal units now, some may develop in the future. If a new ROTC armory were built at a marginal institution with Federal funds, it would be most difficult, if not impossible, to justify its withdrawal. Payment for constructing buildings would not be a direct contribution to the end product—the officer produced—and, consequently, could not be considered as a direct contribution to the maintenance of high quality standards.

The Department of Defense currently favors a proposal that would provide a per capita reimbursement to the institution per graduate commissioned and favors legislation for this purpose. This proposal has the advantage of being equitable, flexible, and relatively easy to administer. Since it is a direct payment for the end product, it exerts an influence on the maintenance of quality. The need for adequate facilities is recognized in the legislative proposal by stating that the reimbursement will not be made unless adequate facilities are provided. The adequacy of the facilities will be determined by mutual agreement between the Secretary of the Military Department concerned and the head of the institution.

The per capita proposal is still under study within the Executive Department. Close study is being given to determination of the exact amount of the per capita reimbursement. It is proposed that the amount be the same for all graduates from all institutions. It is further proposed that the amount approximate the average all institutions must furnish out of pocket to support one ROTC student for 4 years.

The proposal has already been cleared by the Department of Defense Reserve Forces Policy Board's Advisory Panel on ROTC. It has the unanimous support of this panel of distinguished educators representing large and small colleges and from various sections of the United States. It also has the approval of the Reserve Forces Policy Board.

Summary

There will be a continuing need for ROTC in the future to provide high quality officers for our Armed Forces for both the Regular and the Reserve components.

In order that our future military leaders who come from the college campuses be of the highest caliber, there must be emphasis on the quality of their training.

It is the responsibility of the individual institution to determine its policy on compulsory basic ROTC.

All Military Departments are reviewing ROTC curriculums with a view to bringing courses up to date and at the same time making them appropriate for undergraduate instruction.

Academic credit for ROTC in certain areas warrants further study by the Department of Defense.

There is currently under study within the Executive Department a legislative proposal which would provide additional Federal support to institutions having ROTC units. Such support could be authorized on the basis of a per capita reimbursement for each graduate commissioned.

Office of Education Studies and Surveys

Land-Grant Colleges and Universities Enrollment, Degrees, and Faculty Statistics

At the beginning of the 1957–58 academic year, 555,500 students were enrolled in degree-credit courses (resident and extension) in the Nation's 68 land-grant colleges and universities (18.1 percent of the total number enrolled in such courses)—a rise of 16,535, or 3.1 percent, over the comparable enrollment in the same institutions at the beginning of the 1956–57 academic year. This increase was slightly smaller than the 4.1 percent increase in the total for all institutions of higher education. At the beginning of the 1957–58 academic year, 20.0 percent of the students enrolled in degree-credit courses in land-grant institutions were first-time students, whereas a year earlier 21.1 percent were.

Between July 1, 1957, and June 30, 1958, the 68 land-grant institutions conferred 22.8 percent of the degrees conferred by institutions of higher education in the United States. During this 12-month period land-grant institutions conferred 98,585 degrees—79,119 first-level degrees (bachelor's and first professional), 16,094 second-level degrees (master's except first professional), and 3,372 doctorates. These degrees represent 21.6 percent of all first-level degrees earned in 1957–58, 24.5 percent of all second-level degrees, and 37.7 percent of the doctorates.

In the first term of the 1957–58 academic year, 30.7 percent of the faculty and other professional staff positions in institutions of higher education were in land-grant institutions. Faculty and other professional staff positions in land-grant institutions totaled 106,911 in that term; 56,664 or 53 percent of these positions were faculty for resident degree-credit courses. Between academic year 1956–57 and academic year 1957–58, the total faculty and other professional staff positions in land-grant institutions increased 5,019 or 4.9 percent, and faculty for resident degree-credit courses in these institutions increased 3,552 or 6.7 percent.

The foregoing information represents advance data from a report, being prepared by the Educational Statistics Branch, which will present detailed statistics on students, earned degrees conferred, faculty, income, expenditures, endowment and other nonexpendable funds, and physical plant facilities for the 68 land-grant institutions for the year 1957–58. The report will be listed under New Publications when it is ready for distribution.

Engineering Enrollments and Degrees—1959

For the second consecutive year, a decrease is expected in undergraduate engineering enrollments. As this issue goes to press, fall enrollment reports received by the Educational Statistics Branch from 179 of the Nation's 234 engineering schools show a decrease of 6.0 percent in undergraduate engineering enrollment from the fall of 1958. If these figures are confirmed by the final results of the survey, they will suggest a trend pointing to possible decreases in the number of engineering graduates, since there was a 4.5 percent drop in the total fall undergraduate enrollments in all engineering schools from 1957 to 1958.[1]

Engineering enrollments for *advanced* degrees continued to show an increase in fall 1959, although preliminary data indicate that the increase may not be as large this year as it was in 1958. Returns for fall 1959 from 179 of the 234 engineering schools show an increase in graduate enrollments of 9.1 percent over the fall of 1958. In 1958 total graduate engineering enrollments in all engineering schools increased by 16.2 percent over the number reported in 1957.

At the time of this review, the Office had received reports on degrees conferred from 216 of the 234 institutions in the United States that confer engineering degrees. Comparison of the number of engineering degrees these 216 institutions conferred during the 12-month period ending June 30, 1959,

[1] See also "Transfers to Colleges of Engineering," in the November issue of *Higher Education*, regarding the possible effect of transfers to engineering curriculums on this trend.

with the number they conferred during the 12-month period ending June 30, 1958, shows an increase of 8.0 percent in the number of bachelor's or first professional degrees, an increase of 17.2 percent in the master's and other pre-doctoral degrees, and an increase of 11.4 percent in the number of doctor's degrees.

Trends in Engineering Education 1949–1959

THE OFFICE OF EDUCATION plans to publish by June 1960 a survey of engineering education by Henry H. Armsby. The study will be based on a questionnaire, "Survey of Trends in Engineering Education: 1949–59," recently sent to the deans of engineering in all accredited colleges in the United States granting engineering degrees during this period.

The survey was prompted in part by the results of an analysis of engineering enrollment and degree data in fields other than those that are accredited in at least one institution by the Engineers' Council for Professional Development (ECPD). Data contained in the report "Engineering Enrollments and Degrees, 1957," were analyzed, and the results were published in the *Journal of Engineering Education*, February 1, 1959, under the title "An Analysis of 'Other' Engineering Curricula." This examination revealed that, in addition to the 20 fields of engineering then recognized by ECPD, more than 30 other fields were recognized by one or more engineering colleges. This study indicates some of the changes that have been made in recent years in the types of engineering curriculums offered in American colleges and universities and points up the need for further information.

Many of these changes reflect the response of the engineering colleges to such developments as the industrial and military uses of nuclear energy, electronic controls, and computers; the expanding use of plastics; the extension of automation; and the growing importance of interdisciplinary studies, for example, biochemistry and biophysics.

The questionnaire seeks information on curriculums and options offered in 1948–49 and those established since; on important changes in curriculum content made since 1949 and plans for changes by 1961; on the growth of the "three-two" plan, which leads in 5 years to degrees both in the liberal arts and in engineering; and on the increased use of the 5-year engineering curriculum leading to the bachelor's degree. The questionnaire uses the same blocks of courses as the Report of the Committee on the Development of Engineering Faculties of the American Society for Engineering Education, published in the *Journal of Engineering Education*, September 1955.

Instead of identifying individual institutions, the report will group institutions by regions and by levels of engineering degrees they have conferred since July 1, 1949, as reported in the annual surveys of engineering degrees conducted jointly by the Office of Education and the American Society for Engineering Education. It will use the same regional divisions as the Engineering Manpower Commission and the Committee on the Development of Engineering Faculties use to facilitate comparison with their reports.

Program Notes

Fraudulent Educational Enterprises

ARTHUR S. FLEMMING, Secretary of Health, Education, and Welfare, has announced an Office of Education plan of attack on "degree mills"—persons or organizations masquerading as higher educational institutions for the purpose of selling, generally by mail, courses and degrees having little or no relation to the substance of higher education as recognized by the reputable academic community. He praised the American Council on Education study, *American Degree Mills*, by Robert H. Reid,* describing the

**American Degree Mills, A Study of Their Operations and of Existing and Potential Ways to Control Them.* American Council on Education, Washington, D.C. 100 pages. $1. (See annotation under New Publications, *Higher Education*, October 1959.)

operations of such enterprises and the various efforts that have been made to deal with them.

The Secretary, in describing the degree mill, said, "It . . . either receives fees from its so-called students on the basis of fraudulent misrepresentations, or it makes it possible for the recipients of its degrees to perpetrate a fraud on the public." The effects of this kind of fraud are far-reaching. In addition to the injury the degree mills do to the "customers," who honestly believe they have received meaningful academic recognition, and to the public they so persuade, their effect on the prestige of American higher education throughout the world is severely damaging.

The Office three-part plan of action, as announced by Secretary Flemming, is to include the publication of a list of known degree mills and the insertion of a strong statement in the next edition of the *Education Directory*, Part 3, Higher Education, warning the public about bogus institutions. Other phases of the program will involve cooperation of the Office of Education with Federal law enforcement agencies, notably the Federal Trade Commission, the Department of Justice, and the Post Office Department, and with other Government agencies and private associations such as the American Council on Education. The Secretary also pointed out that, because degree mills award many so-called religious degrees, the Commissioner of Education expects to consult with religious leaders on a solution to this aspect of the problem.

Legislation is considered a necessity, inasmuch as most States have no laws prohibiting the outright sale of degrees; only in certain instances are such operations subject to Post Office or Federal Trade Commission action. Mr. Flemming, accordingly, emphasized the need for State legislation and commended the Council of State Governments for its recent efforts to draft a law suitable for adoption by all the States. "If and when it proves impossible for the States themselves to cope with this problem," he said, "consideration should be given to possible Federal legislation."

Mr. Flemming named only four degree mills. The compilation of an extended list and the gathering of the evidence necessary to justify listing an institution as bogus will naturally take some time. The task is complicated by the elusiveness of such enterprises, which causes rapid obsolescence of files—degree mills can change name and location rapidly, according to resistance encountered through public exposure and, in some States, corrective legislation and law enforcement action. In fact, no reliable estimate is available of the number of operations or their scope, although Robert H. Reid, the author of the Council's report, says that 200 of them are known.

New Surplus Property Plan Made Permanent

On October 13, 1959, the first permanent program providing daily opportunity for screening of Government surplus electronic and scientific equipment by science instructors was initiated at the Naval Supply Center, Oakland, California. This program is the result of highly successful pilot distribution projects conducted at the naval supply center at Norfolk, Virginia, beginning in April 1959, and at the Oakland center in August. On one day, August 12, approximately 100 authorized science instructors from 39 schools, colleges, and universities in northern and central California selected more than 23,590 pounds of electronic and scientific equipment with an estimated cost to the Government of $141,540, for which they paid only a handling charge of one cent a pound.

In the past, science teachers have not generally participated directly in the selection of surplus property. As a result, many articles which they would recognize as useful have been overlooked and sold as salvage items. The new plan of distribution, operating through daily and specially scheduled screening opportunities for teachers authorized to represent their respective institutions, results in greatly increased economy and efficiency of utilization. It establishes a permanent central place where school representatives qualified to evaluate possible uses of surplus materials can examine them, select those they need, and take them away before they are consigned to a surplus property warehouse. Under this plan schools get useful materials, and the Government avoids excessive handling and storage.

Teachers and administrators interested in surplus electronic and scientific equipment available to schools should keep several important facts in mind: (1) The screening must be done by a person who is authorized to represent the institution or who accompanies the authorized representative; (2) that person must be prepared and authorized to pay on behalf of the institution he represents the necessary

handling charges; and (3) advance approval must be secured through the execution of a set of the application form HEW-135 (seven copies) by the State agency for surplus property. Interested school officials should communicate initially with the director of the State agency for surplus property in their own State.

The Department of Health, Education, and Welfare is advocating the establishment of similar centers on either a permanent or a recurring basis in other locations. Until this is done, of course, only institutions in California and Virginia and in neighboring States will be able to avail themselves of the kind of opportunity provided by the Oakland and Norfolk Center.

Higher Education and the Youth Fitness Program

THE PRESIDENT'S Council on Youth Fitness was established in 1956 in recognition of the need for systematic national attention to the mental, moral, and physical stamina of our people, particularly our young people.

The contention is frequently heard that the complex of environmental influences typical in today's childhood and adolescence is not conducive to the development of those qualities and capacities which generate vigor in a nation and meaning in the lives of its citizens. This proposition has caused sober reflection by leaders in education and related fields, and the Council was constituted as a means of bringing the prestige and policymaking power of the Presidency to bear upon the problem. The Council is an *ex officio* task group of Federal department and agency heads served by an outside advisory group of 129 members, the President's Citizens' Advisory Committee on Youth Fitness. This latter body includes 3 college presidents and 22 professors and administrative officers concerned with health, physical education, and other areas related to the broad concept of fitness.

The Council's program is basically to stimulate public attention to fitness problems. The President's Conferences on Fitness of American Youth (held annually since the Council's establishment in 1956), participation in State conferences, and staff assistance to States in developing specific programs have enabled the Council to sharpen public awareness of the problems and to generate a variety of beneficial activities. Although local communities are responsible for many of these activities, colleges and universities can make several distinct kinds of contribution, in addition to discharging their responsibilities for promoting the fitness of their own students and faculty members.

One such college contribution is to exert leadership at the State or community level, jointly with civic authorities, as appropriate. The University of Georgia, for example, planned and in May 1958 conducted a Governor's Conference for Youth Fitness to acquaint conference members with the present status of youth fitness and needs of youth in Georgia and to encourage local community action. Similar State conferences have been held with the assistance of higher educational institutions in Illinois (University of Illinois), Maine (University of Maine), South Carolina (Wofford College), Utah (University of Utah), and Wisconsin (University of Wisconsin), and one is being held this month in Arizona (University of Arizona).

Another kind of higher education assistance is the inservice education workshop, of which there have been many over the past 3 years. One workshop, more extended than the average, was conducted by West Virginia University from June 22 to July 3, 1959, for professional leaders in education and recreation. Workshop conferences dealt with family, church, and school influences on the child and with how these social forces, together with specific training, help to develop the kind of character in youth that can successfully meet the complex challenges of modern life.

One of the major responsibilities of higher education to the youth fitness movement is in the professional preparation of teachers, coaches, recreation leaders, clergymen, and members of health and other professions whose work affects children and youth. Many institutions throughout the Nation are critically reexamining the quality of their professional curriculums with respect to the development of professional appreciation of the factors contributing to youth fitness.

A number of institutions of higher learning are contributing to the movement by conducting research in youth fitness. Many gaps exist in our knowledge of the fitness of children and adolescents. Productive ways of equipping our young people to live successfully need investigation. Child-study

in depth is being conducted on an interdisciplinary basis at several university centers. One current study deserving of mention is the physical achievement test project being conducted by the University of California and other institutions and schools within the State in cooperation with the California State Committee on Youth Fitness. Another is the development of a test of physical achievement and the establishment of norms for a national sample of 8,500 boys and girls, a study project sponsored by the American Association for Health, Physical Education, and Recreation. Researchers from several colleges and universities selected items; and University of Michigan staff members conducted the study, selected the sample, and analyzed the data.

The annual National Youth Fitness Week affords an opportunity for special promotional focus on local efforts through tying them in with national publicity. This opportunity has been utilized in one way or other in the program planning of a number of colleges and universities. The next National Youth Fitness Week is May 1–7, 1960.

NSF Antarctic Research Grants

THE NATIONAL SCIENCE FOUNDATION has recently announced 17 grants totaling $651,770 for Antarctic research and associated activities. These new grants, together with others announced in August, bring NSF support for Antarctic research to nearly $4 million. Nine of the awards went to 8 colleges and universities.

Largest grant of the new group—$116,850—went to the U.S. Navy Hydrographic Office for shipboard oceanographic studies in the Bellingshausen, Amundsen, and Ross Seas. Four icebreakers assigned to the U.S. Naval Support Force, Antarctica, will be used in conducting the research.

U.S. Navy teams will assist teams from the Hydrographic Office in the lowering of bathythermographs at 1-hour intervals during each cruise. Salinity, oxygen content, and phosphate content of the water will be sampled. Bottom coring will also be carried out, and plankton and other biological specimens collected.

A young research psychologist from George Washington University, William M. Smith, will accompany the Victoria Land traverse as a team member while studying individual and group behavior during the long, arduous, and isolated trek. Smith is familiar with the Antarctic and with traverse operations, and has been reducing psychological data collected from the Antarctic during the 1958–59 season. It is hoped that from his studies he will be able to draw significant conclusions about individual and group behavior patterns in relation to the conditions of isolation, physical hardships, and dangers encountered.

The School of Hygiene of the Johns Hopkins University has received a grant of $21,850 for continuation of a program of banding Antarctic birds. Under the direction of William J. L. Sladen and Carl R. Eklund, this program will involve banding at each U.S. station and cooperating stations of other nations. The banded birds will be checked or captured at later dates to determine migration patterns, longevity, growth, and life cycle.

A study of changes in the size and movement of the Ross Ice Shelf during the Antarctic summer is expected to provide insight into climatic factors on the continent. James H. Zumberge, associate professor of geology at the University of Michigan, will carry out experiments and measurements while crossing the ice shelf in a 426-mile trek. The data collected will help to determine the "ice balance" of the shelf, the largest known floating ice sheet. The work will be supported by an NSF grant of $18,150, in addition to a grant of $12,500 to the University for a "Study of the Status of Polar Research by U.S. Universities."

The other institutions receiving grants are listed below, together with the amount, the name of the principal investigator, and the title of the project:

University of Wisconsin G. P. Woolard, $51,025	Reconnaissance Trail and Airborne Measurements in Glaciology and Related Studies—Amendment
University of Wisconsin Richard Lee Penney, $7,800	Study of Behavior of Adelie Penguin
Bernice P. Bishop Museum, Honolulu, Hawaii J. L. Gressitt, $18,200	Study of Airborne Organisms in the Antarctic Area
University of Kansas E. J. Zeller, $15,850	Determination of Age of Low Temperature Conditions in Antarctica by Thermoluminescence of Rocks
Stanford University Donald E. Wohlschlag, $67,950	Support of Antarctic Biological Research Laboratory

Snow, Ice, and Permafrost Research Establishment, Wilmette, Illinois H. J. Manger, $19,000	Preparation for Future Drilling and Remeasurement of Drill Hole at Byrd Station
University of Texas O. B. Williams, $17,450	Study of Airborne Bacteria and Fungi of Antarctica
Bureau of Mines, U.S. Department of the Interior E. W. Pehrson, $12,900	Investigation of Methods and Conditions of Mineral Exploration in Isolated Areas
College of William and Mary William J. Hargis, Jr., $10,450	Study of Ecto- and Endo-Parasites of Antarctic Fishes
Arctic Institute of North America, Washington, D.C. Wm. J. L. Sladen, $9,000	Further Support for Medical Microbiological Work in USARP
Arctic Institute of North America, Washington, D.C. Robert C. Faylor, $128,225	Continued Related Scientific Support
Kaiser Foundation Research Institute, Richmond, Calif. Ellsworth C. Dougherty, $5,020	Studies of Soil and Fresh-Water Microfauna and Microflora of the "Dry Valley" Region of Victoria Land
National Academy of Sciences Laurence M. Gould, $81,200	Support of Committee on Polar Research and its Scientific Panels

United States in First World Agricultural Fair

The United States will demonstrate its newest techniques of agricultural research, production, and marketing at the first world agricultural fair, to be held in New Delhi, India, December 1, 1959, to February 14, 1960. The U.S. exhibit is a joint undertaking of the Departments of Commerce and Agriculture, the Atomic Energy Commission, and the U.S. Information Agency.

Secretary of Agriculture Benson has said of this project: "We believe that this is the largest and most complete agriculture exhibit ever attempted. It will mirror American agricultural efficiency through: our land and its resources, research and technology, information and education, applied technology on the farm, marketing of farm products at home and abroad, life in a farm community, and a look at the atomic age in agriculture."

Exchange of Scientists With U.S.S.R.

THE U.S. National Academy of Sciences and the Academy of Sciences of the U.S.S.R. recently announced agreement on a 2-year plan for exchange visits by research scientists. Each academy is to designate 20 fields of specialized scientific inquiry in which its scientists wish to observe or conduct research in the host country. The following categories of exchange visits are included in the agreement:

(a) Approximately 20 noted scientists from each country "to deliver lectures and conduct seminars on various problems on science and technology, as well as for the purpose of studying research work in progress during visits of up to one month"

(b) Approximately 18 scientists to spend 1 month in laboratories of each country observing current research in 14 designated scientific specialties

(c) Six scientists to spend longer periods in specialized study or in the conduct of research in designated scientific specialties.

The ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT was omitted from the list of nationally recognized accrediting agencies in the 1959–60 *Education Directory, Part 3: Higher Education* through error. Directory users should insert the following item on page 8 following the listing of the Council on Medical Education and Hospitals: Engineers' Council for Professional Development; Engineering (eng), technical type curriculums (tech).

NEW PUBLICATIONS

Government Publications

How To Obtain

(*1*) *Cost Publications: Send request, enclosing remittance (check or money order), to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

(*2*) *Free Publications: Request direct from the agency issuing them.*

From the Office of Education

An Analysis of the 5-year Physics Program at Moscow State University, by Edward M. Corson. Washington, 1959. Processed, 43 p. (Information on Education Around the World Series, No. 11.)

Detailed analysis from pedagogical and scientific sources of

the structure, content, and character of the physics program at Moscow State University in terms of practices followed at Columbia University. Evaluation includes: Study plan; radial-semester chart of basic curriculum structure: Moscow University; breakdown of basic math and physics courses: Moscow University; syllabi in mathematics and physics: Moscow University; radial-semester chart of basic curriculum structure: Columbia University; courses and text: Columbia University.

Area Vocational Education Programs, Regulations for the Administration of Title VIII, National Defense Education Act of 1958, P.L. 864, 85th Congress. Washington, U.S. Government Printing Office, 1959. Paper, 7 p. 15 cents. (Misc. No. 3560.)

College and University Faculties: Recent Personnel and Instructional Practices, by Clarence B. Lindquist. Washington, U.S. Government Printing Office, 1959. Paper, 61 p. 30 cents. (Bulletin 1959, No. 27.)

Reports findings of a survey made in May 1958 on the extent of recent use of 21 specified personnel and instructional practices in 1,610 colleges and universities. Particular attention is given to the degree to which the practices have been followed because of faculty shortages. Comparisons are made according to control, region, type, and size of enrollment. Included are comments and observations by administrators on local staffing problems and their solutions. A preliminary report of the study appeared in *Higher Education*, Vol. XV, No. 3, November 1958.

Education Directory 1958–1959, Part 4: Education Associations, by Bobbie Doud. Washington, U.S. Government Printing Office, 1959. Paper, 125 p. 40 cents.

Education Directory 1959–1960, Part 3: Higher Education, by Theresa Birch Wilkins. Washington, U.S. Government Printing Office, 1959. Paper, 205 p. 70 cents.

Education in the Republic of Haiti, by George A. Dale. Washington, U.S. Government Printing Office, 1959. Paper, 180 p. 70 cents. (Bulletin 1959, No. 20.)

Library Research in Progress, Number 1. Washington, U.S. Government Printing Office, 1959. Processed, 39 p. (OE–15003.)

Reports of new and less publicized library research projects under the following headings: Background; organization and administration; resources; reader services; technical processes; personnel and training; international, comparative, and foreign librarianship; and methods of research and evaluation. (See Program Notes, September 1959, p. 22.)

Mechanical Drafting and Design Technology. Washington, U.S. Government Printing Office, 1959. Paper, 26 p. (OE 80000, Misc. 3570–1.)

Describes field of work, job relationships, job descriptions, and training requirements for these technician level occupations. Should be of value to community college and technical institute deans of instruction who are concerned with developing courses of study designed to prepare technicians.

The National Defense Counseling and Guidance Training Institutes Program, Policies and Procedures, NDEA Title V(B): No. 1; A Manual for Participating Institutions. Washington, 1959. Paper, 12 p. (OE 25001.)

The National Defense Counseling and Guidance Training Institutes Program, Basic Facts. Washington, U.S. Government Printing Office, 1959. Paper, 9 p. (OE 25002.)

Planning to Study in the United States? A Guide to Prospective Students from Other Countries, by Adela R. Freeburger. Washington, U.S. Government Printing Office, 1959. Paper, 34 p. 20 cents.

Publications of the Office of Education, 1959 Catalog, prepared by Beryl Parke *and* Others under the direction of Melvin L. Hayes. Washington, U.S. Government Printing Office, 1959. Paper, 49 p. 25 cents. (Bulletin 1959, No. 25.)

The Role of Teacher Education in Distributive Education. Washington, U.S. Government Printing Office, 1959. Paper, 9 p. 10 cents.

The bulletin reports the analysis of programs and professional leadership in the more nearly adequate development of teachers of distributive education with particular attention to the development of creativity.

Teacher Exchange Opportunities Under the International Educational Exchange Program, 1960–61. Washington, U.S. Government Printing Office, 1959. Paper, 35 p.

Describes summer seminars and teaching opportunities for American elementary, secondary, and junior college teachers.

Non-Government Publications

Community College Education for Nursing: An Experiment in Technical Education for Nursing, by Mildred L. Montag. 330 West 42d Street, New York, N.Y., Blakiston Division, McGraw-Hill, 1959. 457 p. $6.00.

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